

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 4854-1 (1969): Glossary of terms for valves and their parts, Part 1: Screw down stop check and gate valve and their parts [MED 17: Chemical Engineering Plants and Related Equipment]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



“पुस्तक १३६०”

“RECOMMENDED 1990”

IS : 4854 (Part I) - 1969

Indian Standard

GLOSSARY OF TERMS FOR VALVES AND THEIR PARTS

PART I SCREW-DOWN STOP, CHECK AND GATE VALVES AND THEIR PARTS

(Fourth Reprint NOVEMBER 1988)

UDC 011'4 : 621'646'2

© Copyright 1970

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

GLOSSARY OF TERMS FOR VALVES AND THEIR PARTS

PART I SCREW-DOWN STOP, CHECK AND GATE VALVES AND THEIR PARTS

Chemical Engineering Sectional Committee, EDC 57

Chairman

DR O. P. KHARBANDA

Representing

Larsen & Toubro Ltd, Bombay

Members

SHRI D. L. PRADHAN (<i>Alternate to</i> Dr O. P. Kharbanda)	
SHRI J. D. ADHIA	Hindustan Organic Chemicals Ltd, Bombay
DR ASGHAR HUSAIN	Regional Research Laboratory (CSIR), Hyderabad
SHRI K. SESHACHARYULU (<i>Alternate</i>)	
SHRI J. M. AYAN DUTT	Indian Institute of Chemical Engineers, Calcutta
DR D. C. TAPADAR (<i>Alternate</i>)	
SHRI H. N. BANERJEA	Associated Cement Companies Ltd, Bombay
DR V. C. THAKAR (<i>Alternate</i>)	
SHRI N. N. BANERJEE	Gansons Private Ltd, Bombay
DR R. KRISHNASWAMY (<i>Alternate</i>)	
SHRI S. D. BHASIN	Imperial Chemical Industries (India) Private Ltd, Calcutta
SHRI P. K. BHATTACHARYA (<i>Alternate</i>)	
SHRI P. K. CHAKRAVARTY	Directorate General of Supplies & Disposals, New Delhi
DR K. S. CHARI	Central Design & Engineering Unit (CSIR), New Delhi
SHRI G. CODD	Lloyd's Register of Shipping, Bombay
SHRI A. KILPATRICK (<i>Alternate</i>)	
SHRI FRANCIS RAYMOND CRUZ	Chemida (India), Bombay
SHRI S. H. RASTE (<i>Alternate</i>)	
SHRI C. R. DASGUPTA	Indian Oil Corporation Ltd (Refineries Division), New Delhi
SHRI K. C. JAIN (<i>Alternate</i>)	
SHRI S. C. DASGUPTA	Directorate General Ordnance Factories (Ministry of Defence), Calcutta
SHRI C. S. GOURISHANKARAN (<i>Alternate</i>)	
SHRI R. S. GROVER	The Ralph M. Parsons Co of Asia, Bombay
SHRI P. V. S. NAMBOOTHIRIPAD (<i>Alternate</i>)	
SHRI S. S. JAKHETE	Indo-Berolina Industries Private Ltd, Bombay
SHRI D. SATYANARAYANA (<i>Alternate</i>)	

(Continued on page 2)

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

(Continued from page 1)

Members

SHRI R. S. KACHWAHA
SHRI H. H. JETHANANDANI (*Alternate*)
PROF N. R. KAMATH
SHRI K. A. NAIK (*Alternate*)
SHRI J. P. KAPUR

Representing

The Fertilizer Corporation of India Ltd, New Delhi
Indian Institute of Technology, Bombay
Indian Chemical Manufacturers' Association, Calcutta
Indian Institute of Petroleum (CSIR), Dehra Dun
Indian Institute of Science, Bangalore
The Delhi Cloth & General Mills Co Ltd, Delhi
Heavy Electricals (India) Ltd, Bhopal
Hindustan Steel Ltd, Ranchi
Walchandnagar Industries Ltd, Walchandnagar, District Poona

DR R. K. GUPTA (*Alternate*)
DR M. G. KRISHNA
DR J. S. AHLUWALIA (*Alternate*)
PROF N. R. KULLOOR
DR D. S. VISWANATH (*Alternate*)
SHRI B. B. MATHUR
SHRI R. C. MISRA
SHRI K. C. MOHAN
SHRI J. P. MUKHERJEE
DR R. S. DUBEY (*Alternate*)
DR M. U. PAI
SHRI R. V. KULKARNI (*Alternate*)
SHRI P. K. PAI
SHRI V. H. PANDYA (*Alternate*)
SHRI R. PRABHAKAR
SHRI A. P. NARAYAN (*Alternate*)
DR M. N. RAO
SHRI V. M. RAO
SHRI K. SATYANARAYANA (*Alternate*)
SHRI P. C. SILAICHIA
SHRI J. B. MALIK (*Alternate*)
SHRI S. P. SINGH
SHRI P. K. SESHAN (*Alternate*)
SHRI N. THANDAVAN
SHRI J. G. BROWN (*Alternate*)
SHRI S. D. TIRUMALA RAO
SHRI B. A. R. SOMAYAJULU (*Alternate*)
SHRI M. V. PATANKAR,
Director (Mech Engg)

National Chemicals Laboratory (CSIR), Poona
Esso Standard Refining Co of India Ltd, Bombay
Tata Chemicals Ltd, Mithapur
Indian Institute of Technology, Kharagpur
The K. C. P. Ltd, Madras
Burmah-Shell Refineries Ltd, Bombay
Directorate General of Technical Development, New Delhi
The A.P.V. Engineering Co Private Ltd, Calcutta
Oil Technological Research Institute, Anantpur (A.P.)
Director General, ISI (*Ex-officio Member*)

Secretary

SHRI M. G. KRISHNA RAO
Deputy Director (Mech Engg), ISI

Valves for Chemical and Petroleum Industry Subcommittee, EDC 57 : 6

Convener

SHRI P. T. CHERIAN Oil and Natural Gas Commission, Dehra Dun

Members

SHRI R. P. BHOWMIK (*Alternate to*
Shri P. T. Cherman)
SHRI D. N. DESAI Esso Standard Refining Co of India Ltd, Bombay

(Continued on page 51)

Indian Standard

GLOSSARY OF TERMS FOR VALVES AND THEIR PARTS

PART I SCREW-DOWN STOP, CHECK AND GATE VALVES AND THEIR PARTS

0. FOREWORD

0.1 This Indian Standard (Part I) was adopted by the Indian Standards Institution on 26 September 1969, after the draft finalized by the Chemical Engineering Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 This glossary of terms, which is in many parts, has been prepared for the guidance of manufacturers and users of valves to assist them in the correct interpretation of the common terms used in the valve industry and trade. It is hoped that this standard will help in establishing a generally recognized usage and eliminate ambiguity and confusion arising out of the individual interpretation of terms. This part deals with screw-down stop, check and gate valves and their parts.

0.3 A three digit number has been assigned to each term in this glossary. The first digit represents the number of the section under which the term comes and the last two digits represent the serial number of the term.

0.4 Figures are given after the definitions solely for the purpose of identifying the various parts of the different types of valves illustrated. The illustrations are merely examples and the purpose is not to indicate specific designs of components to which the definitions are applicable. The names of parts given in the keys to figures show the reference number used in the figures.

0.5 In preparation of this standard considerable assistance has been derived from B.S. 2591 : Part 1 : 1955 'Glossary for valves and valve parts (for fluids), screw-down stop, check and gate valves' issued by the British Standards Institution.

1. SCOPE

1.1 This standard defines types of, and parts for, screw-down stop, check and gate valves.

1.2 This standard does not apply to draw-off taps or stop taps or their parts.

2. TERMINOLOGY

SECTION 1 SCREW-DOWN STOP VALVES

REF No.	TERM	DEFINITION
101	Screw-Down Stop Valve	A valve in which the disk is lifted from and lowered on to the body seat by a stem whose axis is perpendicular to the face of the body seat. Screw-down stop valves may be inside screw type or outside screw type:
	a) <i>Inside Screw</i>	Where the actuating thread of the stem is engaged within the bonnet
	b) <i>Outside Screw</i>	Where the actuating thread of the stem is exterior to the bonnet
<i>Types of Screw-Down Stop Valves</i>		
102	Globe Valve	A valve having generally a spherical body in which the body ends are in line with each other and in which the axis of the stem is at right angles to that of the body ends.
103	Oblique Valve	A valve having generally a spherical body in which the body ends are in line with each other and in which the axis of the stem is oblique to that of the body ends.
104	Angle Valve	A valve having generally a spherical body in which the body ends are at right angles to each other and in which the axis of the stem is in line with that of one body end.
105	Needle Valve	A form of screw-down stop valve, generally restricted to small sizes, which may have the body ends in line or at right angles with each other or may be of the oblique type (see 103). The disk is in the form of a needle point.
106	Other Types	Those are usually described by reference to the disposition of the body ends in relation to each other, such as elbow valves, three-way or Tee valves. The component parts of these types of valves are identical with those for the types referred to in 102, 103 and 104.

REF No.	TERM	DEFINITION
Screw-Down Stop Valve Parts		
107	Trim	<p>A collective term relating to the materials of certain major internal components which are directly affected by the fluid or by the action of the flow thereof through the valve. Trim relates only to the following components:</p> <ul style="list-style-type: none"> a) Disk (or disk facing ring), b) Body seat ring (or body seat facing), and c) Stem. <p>Where the above components are made of materials of similar composition but not necessarily with similar mechanical properties, the valve is referred to as having a 'trim' of that specific material for example '13 percent chrome trim'. Where the components are of dissimilar materials, the material of each is specified separately.</p>
108	Body	The main part of the valve in which the flow of fluid is controlled.
	a) <i>Body End Port</i>	The inlet or outlet opening at the end of the valve body.
	b) <i>Body End</i>	That part of the body which connects the valve to the plant or installation of which the valve forms a part.
	c) <i>Body/Bonnet Connection</i>	The connection of the body to the bonnet generally of the bolted, screwed or union type.
	d) <i>Body/Bonnet Flange</i>	The flange on the body of a bolted flange type of body/bonnet connection.
	e) <i>Body End Neck</i>	That part of the body between the body end and the main portion of the body.
	f) <i>Body/Bonnet Neck</i>	That part of the body between the body/bonnet connection and the main portion of the body.

REF No.	TERM	DEFINITION
	g) <i>Body Dividing Wall</i>	The integral part of the body which separates the inlet and outlet ports and on which the body seat is formed, or in which the body seat ring is secured.
	h) <i>Body Seat</i>	A machined seat with which the disk face makes contact when the valve is closed. When the body seat is formed in the body, a valve is described as having an 'integral seat'. When the body seat is formed on the body seat ring, a valve is described as having a 'renewable seat'.
	j) <i>Body Boss</i>	A boss formed on the exterior of the body to provide sufficient metal to permit a tapped connection.
	k) <i>Drain Boss</i>	A boss as described in 108 (j) to provide for a tapped connection for drainage purposes.
	m) <i>Body Tapping</i>	A tapping in the body to permit an external connection.
109	Body Components	Those parts which are associated, but not integral with the body.
	a) <i>Body Seat Ring</i>	The part of a renewable seated valve, made separate from the body and secured in it, on which the body seat is machined.
	b) <i>Body Seat Facing</i>	A deposit, on the body or body seat ring of material different from them, on which the body seat is machined.
	c) <i>Body Plug</i>	A plug for sealing a tapped hole in a body boss or drain boss [see 108(j) and (k)]
110	Bonnet	That part of the valve, attached to the body, which carries the operating mechanism.
	a) <i>Bonnet Flange</i>	The flange on the bonnet of a bolted type of body/bonnet connection.

REF No.	TERM	DEFINITION
b)	<i>Back Seat</i>	A machined seat, which may be on the bonnet or on a part separate from and secured in the bonnet, which makes contact with the back face [see 115(g)] when the valve is fully open.
c)	<i>Bonnet Condensing Chamber</i>	An annular space in the bonnet around the stem below the stuffing box [see also 117 (a)]
d)	<i>Bonnet Pressure Relief Tapping</i>	A tapping on the side of the bonnet into the condensing chamber.
e)	<i>Bonnet Pressure Relief Boss</i>	A boss on the side of the bonnet to provide sufficient metal to permit the tapping referred to in 110 (d).
111	Bonnet Components	Those parts which are associated, but not integral, with the bonnet.
a)	<i>Bonnet Bolting</i>	Comprises bolts, stud bolts, studs, set screws and nuts used for the body/bonnet connection.
b)	<i>Bonnet Gasket</i>	A component for effecting a fluid-tight joint in a body/bonnet connection.
c)	<i>Bonnet Ring Joint</i>	A gasket in the form of a metal ring which engages with grooves in the mating flanges of the body/bonnet connection.
d)	<i>Bonnet Union Nut</i>	A nut or ring securing the bonnet to the body where the body/bonnet connection is of the union type [see 108 (c)].
e)	<i>Back Seat Bushing</i>	That part, separate from and secured in the bonnet, on which the back seat is machined.
f)	<i>Bonnet Pressure Relief Plug</i>	A plug fitted in the tapping referred to in 110 (e).
g)	<i>Bonnet Locking Device</i>	A screw or other device which prevents a screw or union type bonnet from unscrewing.

REF No.	TERM	DEFINITION
112	Yoke	That exterior part of an outside screw valve, integral with or separate from the bonnet, in which the actuating thread of the stem engages, either directly or through a yoke bush.
a)	<i>Yoke Bush</i>	A bush secured in the yoke and threaded internally to engage the actuating thread of the stem.
b)	<i>Yoke Bush Nut</i>	A nut which secures the yoke bush in the yoke.
c)	<i>Yoke Bush Key or Locking Screw</i>	A locking device which prevents rotation of the yoke bush in the yoke.
d)	<i>Yoke Bolting</i>	Comprises bolts, stud bolts, studs, set screws and nuts used for securing the yoke to the bonnet.
113	Bridge	(An alternative arrangement to yoke.) The exterior part of an outside screw valve, connected to the bonnet by pillars and in which the actuating thread of the stem engages, either directly or through a bush.
a)	<i>Pillars</i>	Distance pieces connecting the bridge to the bonnet.
b)	<i>Pillar Nuts</i>	Nuts used to secure the pillars to the bridge or to the bonnet.
c)	<i>Bridge Bush</i>	A bush secured in the bridge and threaded internally to engage the actuating thread of the stem.
d)	<i>Bridge Bush Nut</i>	A nut which secures the bridge bush in the bridge.
e)	<i>Bridge Bush Key or Locking Screw</i>	A locking device which prevents rotation of the bridge bush in the bridge.
114	Stem or Spindle	That component on which the actuating thread is formed and by which control of the disk is effected.
a)	<i>Stem Button</i>	The formed end of the stem to which the disk or disk holder is attached.

REF No.	TERM	DEFINITION
115	Disk	The generic term for the closing component, irrespective of its shape, on which the disk face is formed, or to which the disk facing ring is secured. For needle valves, the disk may be integral with the stem.
a)	<i>Disk Holder</i>	That part which holds a renewable type of disk.
b)	<i>Disk Face</i>	A machined face which makes contact with the body seat when the valve is closed. It may be machined on the disk itself or on the disk facing ring.
c)	<i>Disk Facing Ring</i>	A ring of different material from the disk and permanently secured to it, on which the disk face is machined. NOTE — The term 'permanently secured' refers to a ring which is separate and secured in such a way that it can only be removed by machining, such as a weld deposited ring.
d)	<i>Disk Retaining Nut</i>	A nut which retains a renewable type disk in the disk holder.
e)	<i>Disk Stem Nut</i>	A nut which secures the stem button or stem end collar in the disk or disk holder.
f)	<i>Disk Stem Nut Lock-Washer</i>	A device for locking the disk stem nut.
g)	<i>Back Face</i>	A machined face on the disk, disk holder, disk stem nut or stem, which makes contact with the back seat [see 110 (b)] when the valve is fully open.
h)	<i>Disk Guide Pin</i>	That part of the disk or disk holder which, when in the form of a pin, engages with the disk guide.
j)	<i>Disk Guide Wings</i>	That part of the disk, disk holder or disk retaining nut which, when in the form of wings, guides the disk to the body seat.
k)	<i>Disk Thrust Plate</i>	A plate inserted between the stem end and the disk or disk holder to take the thrust of the stem end.

REF No	TERM	DEFINITION
	m) <i>Disk Guide</i>	That part, integral with or separate from the body, bonnet or body seat ring, in which the disk or disk holder is guided.
116	Handwheel	The wheel by which the valve is manually operated.
	a) <i>Handwheel Fixing</i>	The nut, set screw washer, key, feather or other means used to secure the handwheel to the stem.
117	Stuffing Box	The part of the bonnet which provides an annular space around the stem to contain the gland and the gland packing.
	a) <i>Lantern Ring</i>	A spacing ring inserted in the stuffing box to form a pressure relief or condensing chamber [see also 110 (c)].
118	Gland	A part which retains and forms a means of compressing the packing. Glands are usually of the screwed or bolted type, of one-piece or two-piece design.
	a) <i>Screwed Gland</i>	The type of gland which is adjusted by a nut which engages the stuffing box.
	b) <i>Gland Nut</i>	The nut of a screwed gland by which pressure is transmitted to the gland.
	c) <i>Bolted Gland</i>	The type of gland which is adjusted by bolts, studs, set screws, etc, attached to the bonnet or the stuffing box.
	d) <i>One-Piece Gland</i>	A bolted design in which the gland is integral with the gland flange.
	e) <i>Two-Piece Gland</i>	A bolted design in which the gland is separate from the gland flange, generally having a self-aligning feature.
	f) <i>Gland Flange</i>	The flange of a bolted one-piece or two-piece gland by which pressure is transmitted to the gland.
	g) <i>Gland Bush</i>	A bush which is inserted in a gland.

REF No.	TERM	DEFINITION
h)	<i>Gland Bolting</i>	Comprises bolts, eye-bolts, stud bolts, studs, set screws and nuts by which pressure is applied to bolted glands.
j)	<i>Packing Nut</i>	(Usually associated only with small relatively low-pressure valves.) A nut similar to that in 118 (b) but which itself contains and compresses the packing in cases where a gland stuffing box is not used.
k)	<i>Gland Packing</i>	Material inserted into the stuffing box or packing nut to prevent leakage of fluid.

**KEY TO FIG. 1 TO 5 FOR SCREW-DOWN STOP VALVES ARRANGED
IN ORDER OF PART REFERENCES**

PART REF	NAME OF PART	REFERENCE No. OF TERM	SEE FIG. No.
1.	Body	108	1, 2, 3, 4, 5
2.	Bonnet (union type)	110 and 108 (c)	1
3.	Bonnet (screwed type)	110 and 108 (c)	1
4.	Bonnet (bolted type)	110 and 108 (c)	2, 3, 4, 5
5.	Stem (inside screw type)	114 and 101 (a)	1
6.	Stem (outside screw type)	114 and 101 (b)	2, 3, 4, 5
6A.	Stem button	114 (a)	1, 2, 3, 4, 5
7.	Disk (renewable type)	115	1
8.	Disk (plug type)	115	1, 5
9.	Disk (ball or spherical type)	115	2, 3, 4
10.	Disk (flat face type)	115	2
10A.	Disk facing ring (rolled in type)	115 (c)	5
11.	Disk holder	115 (a)	1
12.	Disk stem nut	115 (c)	1, 2, 3, 4, 5
13.	Disk stem nut lockwasher	115 (f)	1
14.	Disk thrust plate	115 (k)	2, 4, 5
15.	Disk retaining nut	115 (d)	1
16.	Disk guide pin	115 (h)	1, 5
17.	Body seat ring, shoulder seated	109 (a)	1, 2, 4
18.	Body seat ring, bottom seated	109 (a)	5
19.	Bonnet union nut	111 (d)	1
20.	Bonnet bolt	111 (a)	2
21.	Bonnet bolt nut	111 (a)	2

(Continued)

**KEY TO FIG. 1 TO 5 FOR SCREW-DOWN STOP VALVES ARRANGED
IN ORDER OF PART REFERENCES — Contd**

PART REF	NAME OF PART	REFERENCE NO. OF TERM	SEE FIG. No.
22.	Bonnet stud	111 (a)	2
23.	Bonnet stud nut	111 (a)	2
24	Bonnet flange	110 (a)	4, 5
24A.	Body/bonnet flange	108 (d)	4, 5
25.	Bonnet stud bolt nut	111 (a)	4, 5
26.	Bonnet stud bolt	111 (a)	4, 5
27.	Bonnet gasket	111 (b)	2, 3, 4, 5
27A.	Bonnet ring joint	111 (c)	4
28.	Gland packing	118 (k)	1, 2, 3, 4, 5
29.	Gland nut	118 (b)	1
30.	Gland	118	1, 2, 4
31.	Gland flange	118 (f)	2, 4
32.	One-piece gland	118 (d)	2, 3, 4, 5
33.	Disk guide wings	115 (j)	3
34.	Gland bush	118 (g)	3, 5
35.	Gland bolt	118 (h)	2
36.	Gland bolt nut	118 (h)	2
37.	Gland stud	118 (h)	2
38.	Gland stud nut	118 (h)	2
39.	Gland stud bolt	118 (h)	4, 5
40.	Gland eye bolt	118 (h)	4
41.	Yoke	112	2, 4, 5
42.	Yoke bush	112 (a)	2, 4, 5
43.	Yoke bush nut	112 (b)	4, 5
43A.	Yoke bush key	112 (c)	4
44.	Gland stud bolt nut	118 (i)	4, 5
45.	Bridge	113	3
46.	Bridge bush	113 (c)	3
47.	Bridge bush locking screw	113 (e)	3
48.	Pillar	113 (a)	3
49.	Pillar nut	113 (b)	3
50.	Handwheel	116	1, 2, 3, 4, 5
51.	Handwheel nut	116 (a)	1, 2, 3, 4, 5
52.	Handwheel key	116 (a)	2
53.	Handwheel washer	116 (a)	2, 3
54.	Back seat bushing	111 (e)	3, 4, 5
54A.	Back seat	110 (b)	2, 4, 5
55.	Back face	115 (g)	1, 2, 4, 5
56.	Lantern ring	117 (a)	4
57.	Drain boss	108 (k)	4, 5
58.	Body end	108 (b)	1, 2, 3, 4, 5
59.	Bonnet condensing chamber	110 (c)	4
60.	Bonnet pressure relief boss	110 (e)	4
61.	Body dividing wall	108 (g)	1, 2, 3, 4, 5
62.	Body neck	108 (e)	1, 2, 3, 4, 5
63.	Body port	108 (a)	1, 3, 4
64.	Body/bonnet neck	108 (f)	1, 2, 3, 4, 5
65.	Disk guide	115 (m)	1, 5

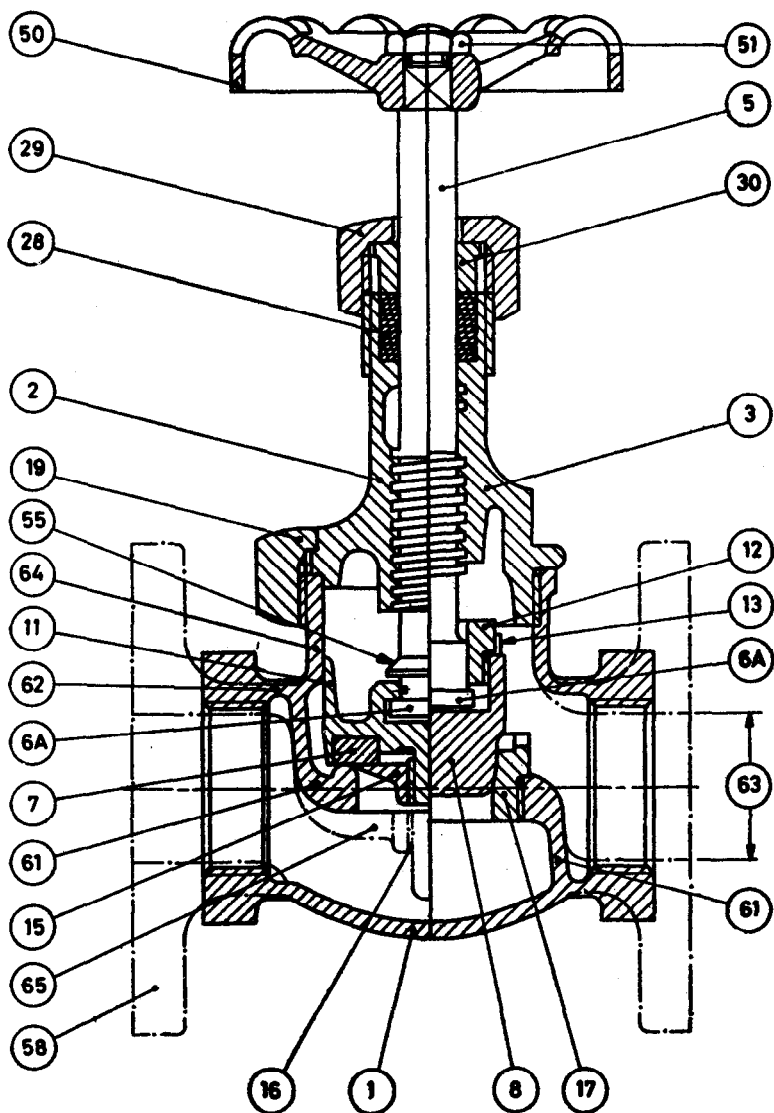


FIG. 1 TYPICAL SCREW-DOWN STOP VALVE

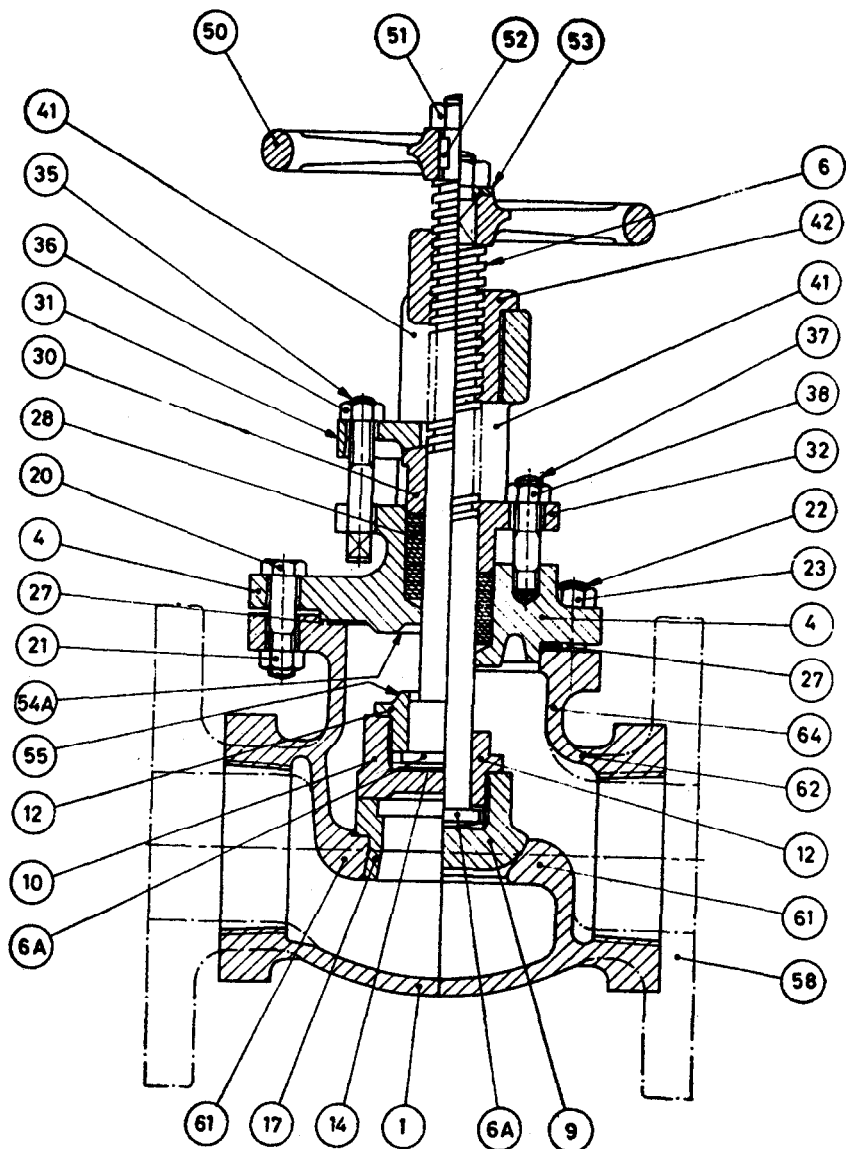


FIG. 2 TYPICAL SCREW-DOWN STOP VALVE

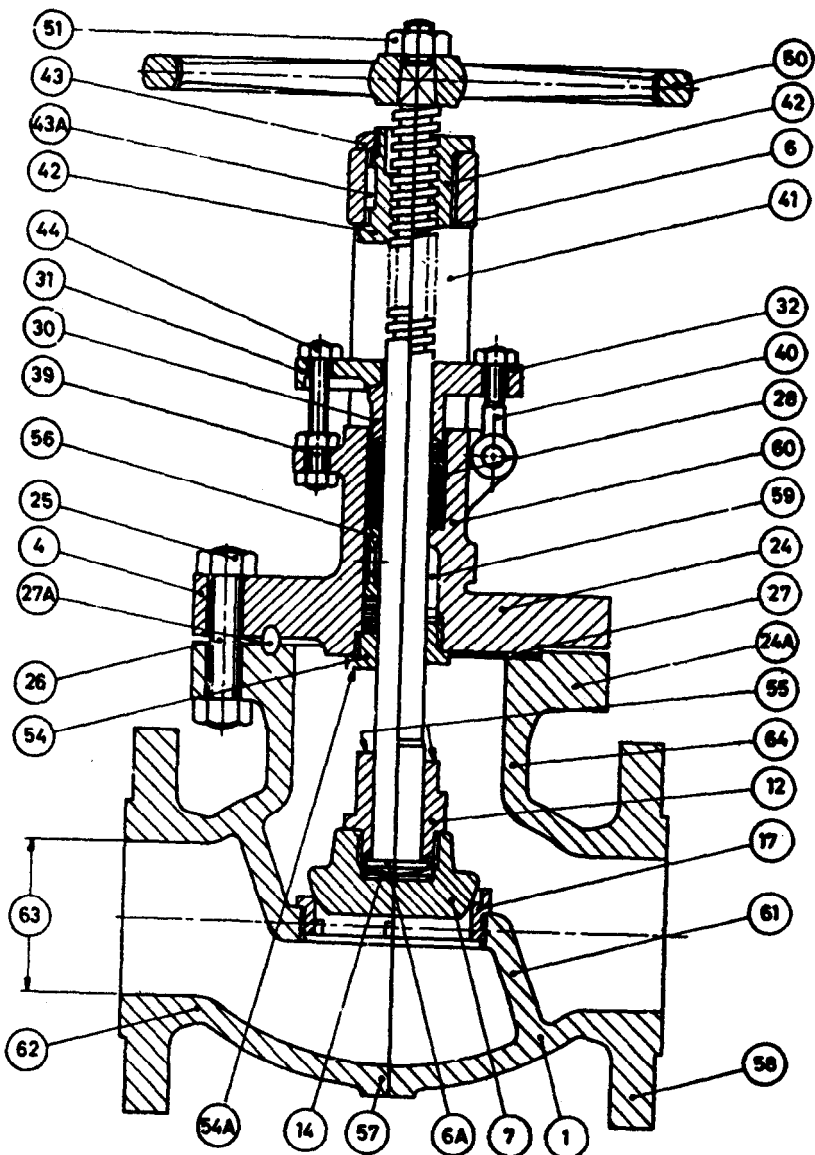


FIG. 4 TYPICAL SCREW-DOWN STOP VALVE

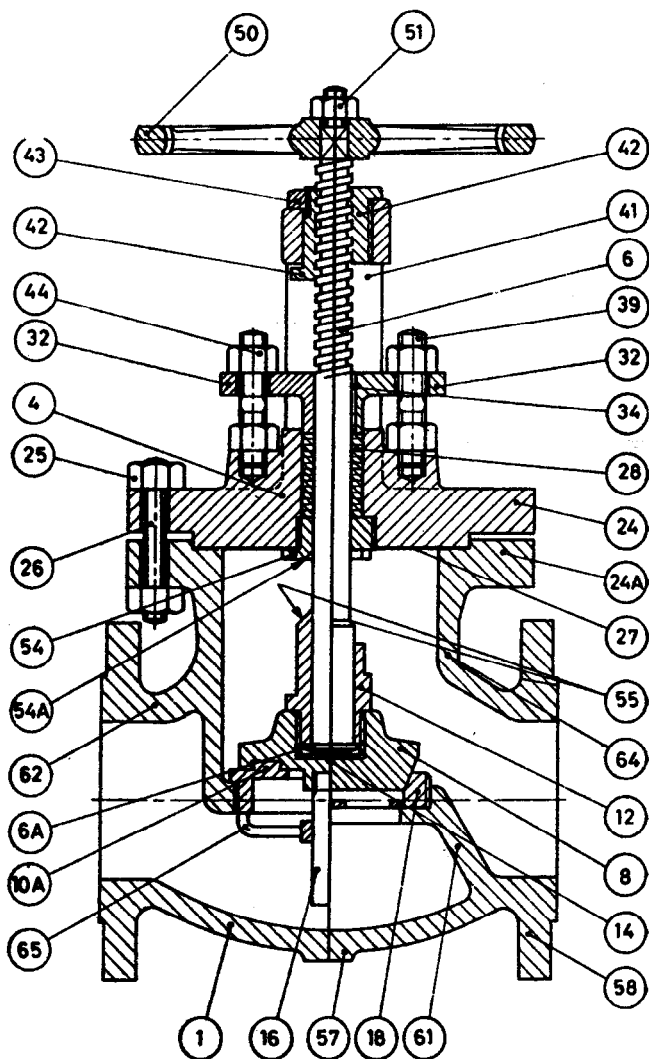


FIG. 5 TYPICAL SCREW-DOWN STOP VALVE

SECTION 2 CHECK VALVES

REF No.	TERM	DEFINITION
201	Check Valve	A valve which prevents reversal of flow by means of the check mechanism, the valve being opened by the flow of fluid and closed by the weight of the check mechanism when the flow ceases, or by back pressure. Where positive closing is required in any position, springs may also be used.

Check Valve Patterns

202	Horizontal Pattern	In which the body ends are in line with each other, for installation in a horizontal position.
203	Vertical Pattern	In which the body ends are in line with each other, for installation in a vertical position.
204	Angle Pattern	In which the body ends are at right angles to each other, for installation at a junction between vertical and horizontal positions.

Types of Check Valve

205	Swing Type	<p>A check valve in which the check mechanism incorporates a disk which swings on a hinge. It may be lever and weight mounted to assist or balance the disk. Lever and weight loaded swing check valves are described as follows:</p> <ol style="list-style-type: none"> Where lever and weight are mounted to assist disk in closing where the valve is installed in horizontal lines where quick action is necessary to avoid sudden reversal of flow. Where lever and weight are mounted to balance disk when valve is installed in horizontal lines where disk is required to open under minimum of pressure.
-----	-------------------	---

Ref No.	TERM	DEFINITION
		c) Where lever and weight are mounted to assist disk in closing when valve is installed in vertical lines where quick action is necessary to avoid a sudden reversal of flow.
206 Lift Type		A check valve in which the check mechanism incorporates a disk, piston or ball which lifts along an axis in line with the axis of the body seat. Lift type check valves are described, according to the type of check mechanism, as follows.
	a) <i>Disk Check</i>	A check valve in which the check mechanism is, or incorporates, a disk.
	b) <i>Piston Check</i>	A disk check valve in which is incorporated a dashpot, consisting of a piston and cylinder, which provides a cushioning effect during operation.
	c) <i>Ball Check</i>	A check valve in which the check mechanism is a ball.
	d) <i>Spring Loaded Check</i>	A check valve in which the check mechanism is loaded with spring compression in order to provide a quick closure.
207 Screw-Down Stop and Check Valve		A check valve which incorporates a mechanism which can hold the disk in the closed position independently of the flow or, alternatively, may restrict the lift of the disk.

NOTE — Screw-down stop and check valves differ from globe valves only in that the disk is not attached to the stem. In some types a dashpot and piston are incorporated with the disk, as in the piston type check valve. Therefore, the definitions of components and trim as given in Section 1 of this standard will apply, together with those definitions of components for the piston type check valve in this section, where applicable.

REF No.	TERM	DEFINITION
208	Foot Valve	A check valve fitted to the bottom of a section pipe. A strainer is often fitted to this valve.
<i>Check Valve Parts</i>		
209	Trim	<p>A collective term relating to the materials of certain major internal components which are directly affected by the fluid or by the action of the flow thereof through the valve. Trim relates only to the following components:</p> <p>Disk (or disk facing ring) or ball, piston (when integral with disk), body seat ring (or body seat facing) and hinge pin (for swing type).</p> <p>Where the above components are made in materials of similar mechanical properties, the valve is referred to as having a trim of that specific material for example '13 percent chrome trim'. Where the components are of dissimilar materials, of each is specified separately.</p>
210	Body	The main part of the valve in which the flow of fluid is controlled.
	a) <i>Body End Port</i>	The inlet or outlet opening at the end of the valve body.
	b) <i>Body End</i>	That part of the body which connects the valve to the plant or installation of which the valve forms a part.
	c) <i>Body/Cover Connection</i>	The connection of the body to the cover, generally of the bolted, screwed or union type.
	d) <i>Body/Cover Flange</i>	The flange on the body of a bolted flange type of body/cover connection.
	e) <i>Body End Neck</i>	The part of the body between the body end and the main portion of the body.
	f) <i>Body/Cover Neck</i>	That part of the body between the body/cover connection and the main portion of the body.

REF No.	TERM	DEFINITION
	g) <i>Body Dividing Wall</i>	The integral part of the body of a lift type check valve which separates the inlet and outlet ports and on which the body seat is formed, or in which the body seat ring is secured.
	h) <i>Body Seat</i>	A machined seat with which the disk face or ball makes contact when the valve is closed. When the body seat is formed in the body, a valve is described as having an 'integral seat'. When the body seat is formed on the body seat ring, a valve is described as having a 'renewable seat'.
	j) <i>Drain Boss</i>	A boss formed on the exterior of the body to provide for a tapped connection for drainage purposes.
	k) <i>Hinge Pin Boss</i>	A boss formed on or in the body of a swing check valve to accommodate the hinge pin and hinge pin plug.
	m) <i>Body Stop</i>	A stop to limit the travel of the disk in a swing check valve. The stop may be integral with the body or cover, or may be a separate component [see 211 (d)].
	n) <i>Body Tapping</i>	A tapping in the body to permit an external connection.
211	Body Components	Those parts which are associated, but not integral, with the body.
	a) <i>Body Seat Ring</i>	The part of a renewable seated valve, made separate from the body and secured in it, on which the body seat is machined.
	b) <i>Body Seat Facing</i>	A deposit on the body or body seat ring of material different from them, on which the body seat is machined.
	c) <i>Drain Plug</i>	A plug for sealing a tapped hole in a drain boss.
	d) <i>Body Stop Plug</i>	A plug fitted in the body to limit the travel of the disk in a swing check valve [see 210 (m)].

REF No.	TERM	DEFINITION
	e) <i>Hinge Pin Plug</i>	A plug fitted in the body to retain the hinge pin.
212	Cover	That part which closes the body aperture through which access is obtained to the internal parts of the valve.
	a) <i>Cover Flange</i>	The flange which connects a bolted cover to the body/cover flange.
213	Cover Components	Those parts which are associated, but not integral, with the cover.
	a) <i>Cover Bolting</i>	Comprises bolts, stud bolts, studs, set screws and nuts used for the body/cover connection.
	b) <i>Cover Gasket</i>	A component for effecting a fluid-tight joint in a body/cover connection.
	c) <i>Cover Ring Joint</i>	A joint, in the form of a metal ring, which engages with grooves in the mating flanges of the body/cover connection.
	d) <i>Cover Union Nut</i>	A nut or ring securing the cover to the body where the body/cover connection is of the union type [see 210 (c)].
214	Check Mechanism	The term for the part or assembly of parts operated by the flow of fluid.
	a) <i>Disk</i>	The part of a swing, disk or piston type of valve on which the disk face is formed or to which a disk facing ring is secured.
	1) <i>Disk holder</i>	That part which holds a renewable type of disk.
	2) <i>Disk face</i>	A machined face which makes contact with the body seat when the valve is closed. It may be machined on the disk itself or on the disk facing ring.
	3) <i>Disk facing ring</i>	A ring, of different material from the disk and permanently secured to it, on which the disk face is machined.

NOTE — The term 'permanently secured' refers to a ring which is separate and secured in such a way that it may only be removed by machining, such as a weld deposited ring.

REF No.	TERM	DEFINITION
4)	<i>Disk retaining nut</i>	A nut which retains a renewable type of disk in the disk holder.
5)	<i>Disk guide</i>	That part, integral with or separate from the body, cover or body seat ring, in which the check mechanism is guided.
6)	<i>Disk guide pin</i>	That part of the check mechanism which, when in the form of a pin, engages with the disk guide.
7)	<i>Disk guide wings</i>	That part of the check mechanism which, when in the form of wings, guides the disk to the body seat.
b)	<i>Piston</i>	The part of the check mechanism of a piston check valve which works in the dashpot cylinder.
1)	<i>Dashpot cylinder</i>	That part of the check mechanism of a piston check valve in which the piston works.
c)	<i>Ball</i>	The spherical check mechanism of a ball check valve.
1)	<i>Grid</i>	That part of a vertical ball check valve which restricts the travel of the ball and through which the fluid passes.
2)	<i>Ball guide</i>	That part of a ball check valve, integral with or separate from the body, cover or grid, in which the ball is guided.
d)	<i>Hinge</i>	The part or parts of a swing check valve which enable the disk to swing.
1)	<i>Hinge pin</i>	The pin about which the disk of a swing check valve swings.
e)	<i>Hinge/Disk Connection</i>	Comprises stud, nut, washer and cotter pin which secure the hinge to the disk when the hinge is separate from the disk.
f)	<i>Hinge/Hinge Pin Connection</i>	A stud or key provided for fixing the hinge to hinge pin.
g)	<i>Weight</i>	Weight sliding on the outside lever which loads the disk.
h)	<i>Outside Lever</i>	Lever connected to the hinge pin and on which the weight slides.

REF	TERM	DEFINITION
No.	j) <i>Weight/Lever Connection</i>	Comprises locking screw and nut by which weight can be fixed on the lever at the desired position.
	k) <i>Stuffing Box</i>	The part on the hinge pin boss which provides an annular space around the hinge pin to contain the gland and gland packing.
	m) <i>Gland Nut</i>	A part which retains and forms a means of compressing the packing.

**KEY TO FIG. 6 TO 12 FOR CHECK VALVES ARRANGED
IN ORDER OF PART REFERENCES**

PART REF	NAME OF PART	REFERENCE NO. OF TERM	SEE FIG. NO.
1.	Body	210	6, 7, 8, 9, 10, 11, 12
2.	Body end port	210 (a)	6, 7, 9, 10, 11, 12
3.	Body end	210 (b)	6, 7, 9, 10, 12
4.	Body/cover flange	210 (d)	6, 7, 10
5.	Body/end neck	210 (e)	6, 7, 9, 10, 11
6.	Drain boss	210 (j)	6, 7
7.	Hinge pin boss	210 (k)	6, 7
8.	Body stop	210 (m)	6, 7
9.	Body seat ring	211 (a)	6, 7, 9, 10, 12
10.	Cover (bolted type)	212	6, 7, 10
11.	Cover flange	212 (a)	6, 7, 10
12.	Cover bolt (or stud, bolt, stud or set screw)	213 (a)	6, 7, 10
13.	Cover bolt nut	213 (a)	6, 7, 10
14.	Cover gasket	213 (b)	6, 7, 9, 10, 12
15.	Cover ring joint	213 (c)	6, 7
16.	Disk	214 (a)	6, 7, 8, 9
17.	Disk facing ring	214 (a) (3)	6, 7
18.	Hinge/disk connection	214 (e)	6, 7
19.	Hinge	214 (d)	6, 7
20.	Hinge pin	214 (d) (1)	6, 7
21.	Hinge pin plug	211 (e)	6
22.	Body dividing wall	210 (g)	8, 9, 10, 12
23.	Cover union nut	213 (d)	8, 10, 11, 12
24.	Disk holder	214 (a) (1)	8, 9
25.	Disk retaining nut	214 (a) (4)	9
26.	Cover (screwed type)	212	7, 8, 9, 10, 11
27.	Cover (union type)	212	8, 9, 10, 12
28.	Disk guide pin	214 (a) (6)	8, 9
29.	Disk guide wings	214 (a) (7)	8, 9
30.	Disk guide	214 (a) (5)	9
31.	Grid	214 (c) (1)	11
32.	Piston	214 (b)	9
33.	Ball	214 (c)	10, 11
34.	Ball guide	214 (c) (2)	10, 11
35.	Body/cover neck	210 (f)	7, 8, 9, 10, 12
36.	Hinge/hinge pin connection	214 (f)	7
37.	Weight	214 (g)	7
38.	Outside lever	214 (h)	7
39.	Weight lever connection	214 (j)	7
40.	Gland nut	214 (m)	7

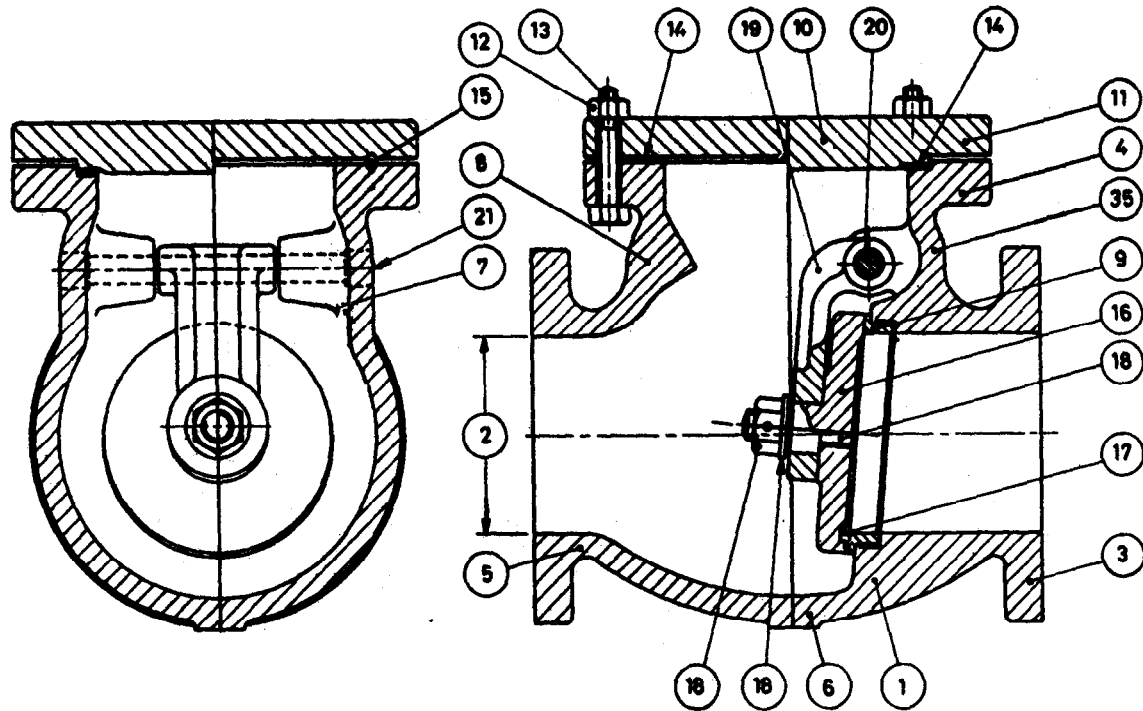
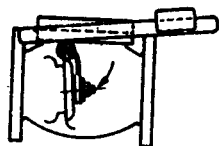
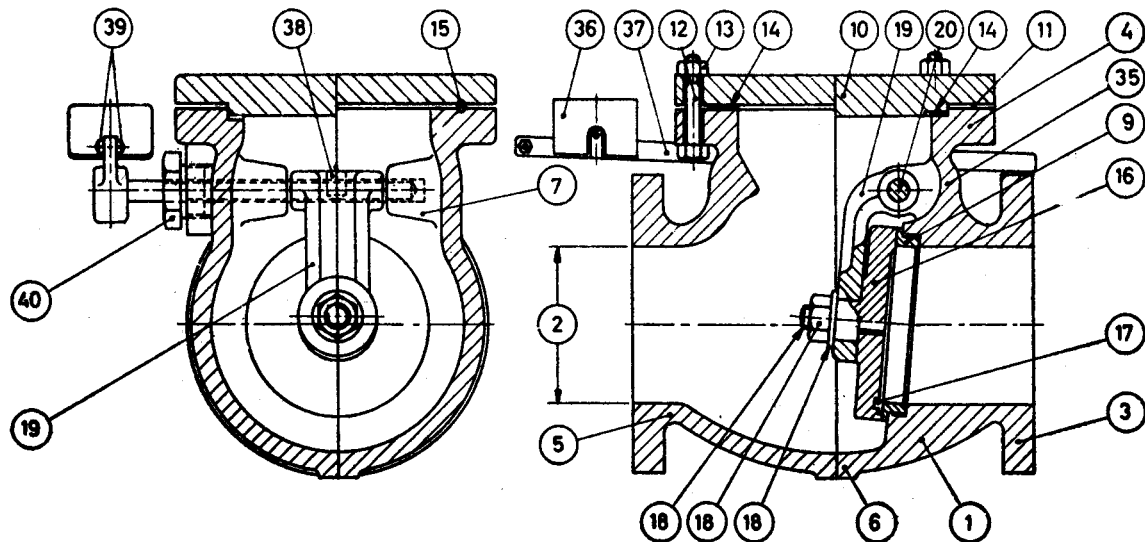
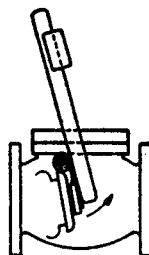


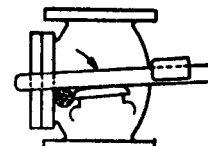
FIG. 6 HORIZONTAL OR VERTICAL PATTERN SWING TYPE CHECK VALVE



A. Lever and Weight Mounted to Assist in Closing for Use in Horizontal Lines



B. Lever and Weight Mounted to Balance the Disk for Use in Horizontal Lines



C. Lever and Weight Mounted to Assist the Disk in Closing for Use in Vertical Lines

FIG. 7 SWING CHECK VALVE WITH LEVER AND WEIGHT

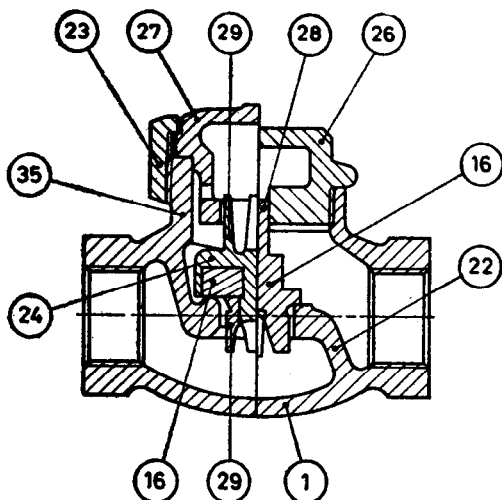


FIG. 8 HORIZONTAL PATTERN LIFT TYPE DISK CHECK VALVE

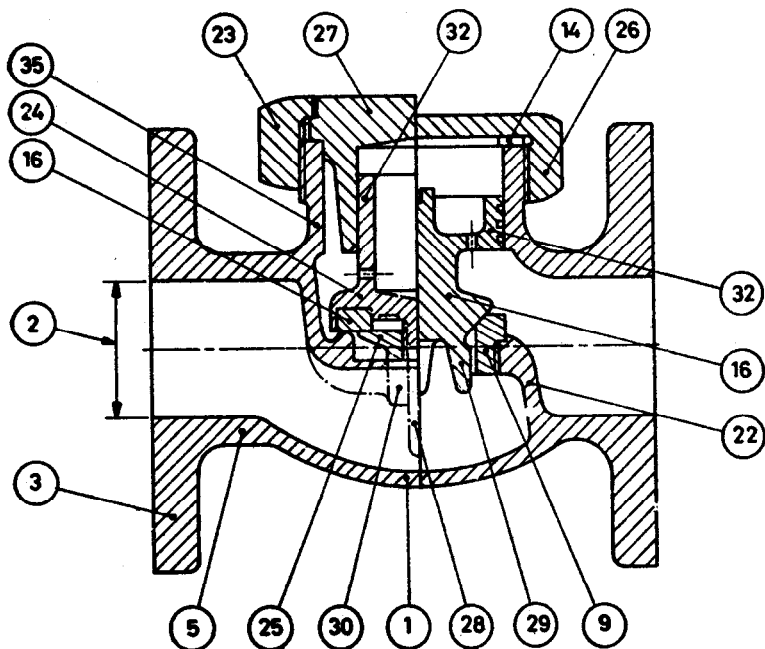


FIG. 9 HORIZONTAL PATTERN LIFT TYPE PISTON CHECK VALVE

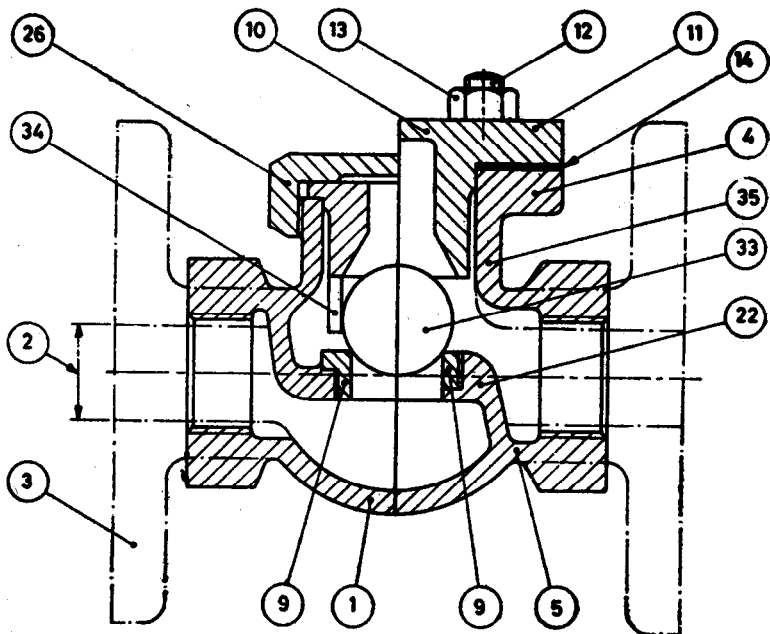


FIG. 10 HORIZONTAL PATTERN LIFT TYPE BALL CHECK VALVE

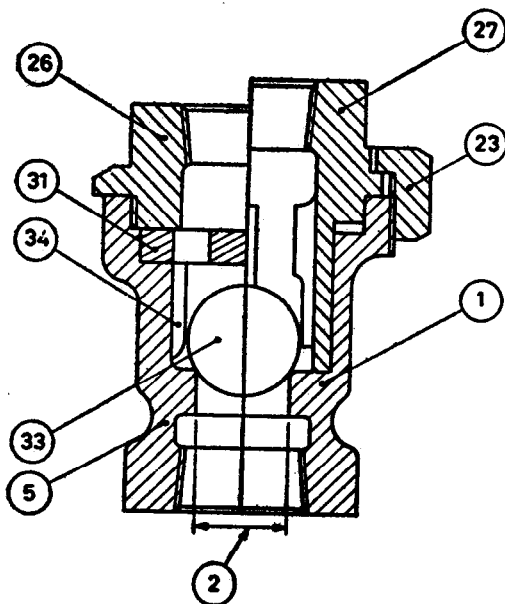


FIG. 11 VERTICAL PATTERN LIFT TYPE BALL CHECK VALVE

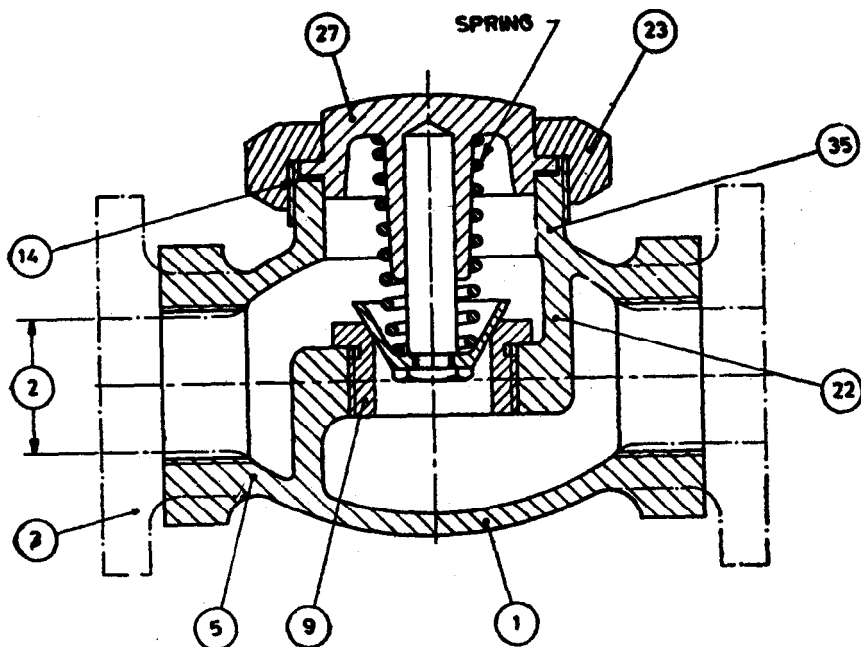


FIG. 12 SPRING LOADED CHECK VALVE

SECTION 3 GATE VALVES

REF No.	TERM	DEFINITION
301	Gate Valve	A valve which provides a straight-through passage for the flow of fluid. The body ends are in line and the gate is moved between the body seats by a stem whose axis is at right angles to that of the body ends. Gate valves may be inside screw type or outside screw type.
	a) <i>Inside Screw</i>	In which the actuating thread of the stem is contained inside the valve. This may take three forms.
	1) <i>Inside screw, rising stem</i>	Where the handwheel is attached to the stem and rises with it when the valve is opened (see Fig. 15 and 17)

REF No.	TERM	DEFINITION
	2) <i>Inside screw, non-rising stem</i>	Where the handwheel is attached to a non-rising stem, the gate rising on the stem when the valve is opened (see Fig. 13, 14 and 16).
	3) <i>Inside screw, rising spindle, rising stem</i>	Where the handwheel is attached to a rising spindle, and the stem rises within and with the spindle when the valve is opened (see Fig. 19).
b) <i>Outside Screw</i>		In which the actuating thread of the stem is exterior to the bonnet. This may take three forms:
	1) <i>Outside screw, stem rising with hand-wheel</i>	Where the handwheel is attached to the stem and rises with it when the valve is opened. (Not illustrated, but the same as Fig. 12 except that the hand-wheel is attached directly to the stem.)
	2) <i>Outside screw, stem rising through hand-wheel</i>	Where the handwheel is attached to a yoke sleeve or bridge sleeve which revolves in the yoke or bridge and through which the stem rises when the valve is opened [Fig. 11, 12 and 18 (right half)].
	3) <i>Outside screw non-rising spindle, rising stem</i>	Where the handwheel is attached to a non-rising spindle and the stem rises when the valve is opened [see Fig. 18 (left half)].

Types of Gate Valves

302	Wedge Gate Valve	A valve in which closure is effected by the wedge action between the gate and the body seats. Wedge gate valves may take the following forms:
	a) <i>Solid Wedge</i>	In which the gate is in one piece, either solid or cored.
	b) <i>Split Wedge</i>	In which the gate is in two pieces.
303	Sluice Valve	A solid wedge gate valve used for water works purposes.

REF No.	TERM	DEFINITION
304	Double Disk Gate Valve	A valve in which the gate consists of two disks which are forced apart by a spreading mechanism at the point of closure against both parallel body seats, thus ensuring an effective sealing of the valve without the assistance of the fluid pressure.
305	Parallel Slide Valve	A valve in which the gate consists of one or two disks, without spreading mechanism, which slide between parallel body seats, effective closure being obtained by the pressure of the fluid forcing the downstream disk face against its mating body seat.

Gate Valve Parts

306	Trim	<p>A collective term relating to the materials of certain major internal components which are directly affected by the fluid or by the action of the flow thereof through the valve. Trim relates only to the following components:</p> <ul style="list-style-type: none"> a) Wedge (or wedge facing rings), b) Disks (or disk facing rings), c) Body seat rings (or body seat facings), and d) Stem.
-----	-------------	---

Where the above components are made in materials of similar composition, but not necessarily with similar mechanical properties, the valve is referred to as having a trim of that specific material, for example, '13 percent chrome trim'. Where the components are of dissimilar materials, the material of each is specified separately.

307	Body	The main part of the valve in which the flow of fluid is controlled.
-----	-------------	--

REF No.	TERM	DEFINITION
a)	<i>Body End Port</i>	The inlet or outlet opening at the end of the valve body.
b)	<i>Body End</i>	That part of the body which connects the valve to the plant or installation of which the valve forms a part. It is not within the scope of this glossary to describe the type or form of the body ends.
c)	<i>Body/Bonnet Connection</i>	The connection of the body to the bonnet, generally of the bolted, screwed or union type.
d)	<i>Body/Bonnet Flange</i>	The flange on the body of a bolted flange type of body/bonnet connection.
e)	<i>Body End Neck</i>	That part of the body between the body end and the main portion of the body.
f)	<i>Body/Bonnet Neck</i>	That part of the body between the body/bonnet connection and the main portion of the body.
g)	<i>Body Seat</i>	A machined seat with which the wedge or disk face makes contact when the valve is closed. When the body seats are formed in the body, a valve is described as having 'integral seats'. When the body seats are formed on the body seat rings, the valve is described as having 'renewable seats'.
h)	<i>Body Boss</i>	A boss formed on the exterior of the body to provide sufficient metal to permit a tapped connection.
j)	<i>Drain Boss</i>	A boss as described in 307 (h) to provide for a tapped connection for drainage purposes.
k)	<i>Body Tapping</i>	A tapping in the body to permit an external connection.
m)	<i>Body/Gate Guides</i>	Rails or grooves formed inside the body to guide the gate between the body seats and to prevent it turning when it is raised or lowered.

REF No.	TERM	DEFINITION
308	Body Components	Those parts which are associated, but not integral with the body.
a)	<i>Body Seat Ring</i>	The part of a renewable seated valve made separate from the body and secured in it, on which the body seat is machined.
b)	<i>Body Seat Facing</i>	A deposit on the body or body seat ring of material different from them, on which the body seat is machined.
c)	<i>Body Plug</i>	A plug for sealing tapped hole in a body boss or drain boss [see 307 (h) and (j)].
309	Bonnet	That part of the valve, attached to the body, which carries the operating mechanism.
a)	<i>Bonnet Flange</i>	The flange on the bonnet of a bolted type of body/bonnet connection.
b)	<i>Bonnet Flange</i> <i>Stuffing Box</i>	A flange which connects the stuffing box to the bonnet when the stuffing box is separate.
c)	<i>Bonnet/Yoke Flange</i>	The flange which connects the yoke to the bonnet when the yoke is separate.
d)	<i>Pillar/Bonnet Connection</i>	The bosses or flange on the bonnet to which the pillars are secured.
e)	<i>Back Seat</i>	A machined seat, which may be on the bonnet or on a part separate from and secured in the bonnet, which makes contact with the back face [see 313 (d)] when the valve is fully open.
f)	<i>Bonnet Condensing Chamber</i>	An annular space in the bonnet around the stem below the stuffing box [see also 317 (a)].
g)	<i>Bonnet Pressure Relief Tapping</i>	A tapping on the side of the bonnet into the condensing chamber.
h)	<i>Bonnet Pressure Relief Boss</i>	A boss on the side of the bonnet to provide sufficient metal to permit the tapping referred to in 309 (g).

REF No.	TERM	DEFINITION
310 Bonnet Components		Those parts which are associated but not integral with bonnet.
a) <i>Bonnet Bolting</i>		Comprises bolts, stud bolts, studs, set screws and nuts used for the body/bonnet connection.
b) <i>Bonnet Gasket</i>		A component for effecting a fluid-tight joint in a body/bonnet connection.
c) <i>Bonnet Ring Joint</i>		A gasket in the form of a metal ring which engages with grooves in the mating flanges of the body/bonnet connection.
d) <i>Bonnet Union Nut</i>		A nut or ring securing the bonnet to the body where the body/bonnet connection is of the union type [see 307 (c)].
e) <i>Back Seat Bushing</i>		That part, separate from and secured in the bonnet, on which the back seat is machined.
f) <i>Bonnet Pressure Relief Plug</i>		A plug fitted in the tapping referred to in 309 (g).
g) <i>Stem Bush</i>		That part, separate from and secured in the bonnet, which takes the thrust of the stem thrust collar.
311 Yoke		That exterior part of an outside screw valve, integral with or separate from the bonnet, in which the actuating thread of the stem engages indirectly through a yoke sleeve.
a) <i>Yoke Sleeve</i>		A sleeve to which the handwheel is secured and which is located in the yoke to engage the actuating thread of the stem [see 301 (b)(2)].
b) <i>Yoke Sleeve Retaining Nut</i>		A nut to retain the yoke sleeve in the yoke.
c) <i>Yoke Cap</i>		A cap bolted to the yoke to perform a similar function to that of the yoke sleeve retaining nut [see 311 (b)].
d) <i>Yoke Bolting</i>		Comprises bolts, stud bolts, studs, set screws and nuts used for yoke and yoke cap assemblies and for securing the yoke to the bonnet.

REF No.	TERM	DEFINITION
312	Bridge	(An alternative arrangement to yoke.) The exterior part of an outside screw valve, connected to the bonnet by pillars and in which the actuating thread engages, either directly or indirectly through a bridge bush or a bridge sleeve.
a)	<i>Pillars</i>	Distance pieces connecting the bridge to the bonnet.
b)	<i>Pillars Nuts</i>	Nuts used to secure the pillars to the bridge or to the bonnet.
c)	<i>Bridge Bush</i>	A bush secured in the bridge.
d)	<i>Bridge Bush Nut</i>	A nut which secures the bridge bush in the bridge.
e)	<i>Bridge Bush Key or Locking Screw</i>	A locking device which prevents rotation of the bridge bush in the bridge.
f)	<i>Bridge Sleeve</i>	A sleeve to which the handwheel is secured and which is located in the bridge to engage the actuating thread of the stem [see 301 (b) (2)].
g)	<i>Bridge Sleeve Bush</i>	A bush secured in the bridge to form a bearing for the bridge sleeve.
h)	<i>Bridge Sleeve Bush Retaining Nut</i>	A nut which retains the bridge sleeve bush in the bridge.
313	Stem or Spindle	That component on which the actuating thread is formed and by which control of the gate is effected. Where this is in two parts, the part to which the gate is attached is the stem and the part to which the handwheel is attached is the spindle.
a)	<i>Stem Head</i>	That end of the stem formed for the attachment of the gate.
b)	<i>Stem Thrust Collar</i>	A collar formed on the stem of a non-rising stem valve.
c)	<i>Stem/Gate Connection</i>	The means of attaching the gate to the stem. This is generally of the following forms: a) Tee head,

Ref No.	TERM	DEFINITION
		b) Button head, c) Screwed and pinned, and d) Belt eye.
	d) <i>Back Face</i>	A machined face on the stem or spindle which makes contact with the back seat [see 309 (c)] when the valve is fully open.
	e) <i>Stem Stop</i>	A part fitted to the stem or spindle to prevent its rotation.
	f) <i>Stem Stop Nut</i>	A nut which secures the stop to the stem or spindle.
314	Gate	A collective term describing the component or assembly of components which close the fluid passage of a gate valve. As applied to valves included in this section, gates or gate assemblies are defined as follows.
	a) <i>Wedge Gate Valves</i>	
	1) <i>Wedge</i>	The component, in the form of a solid or split wedge, attached to the stem, and on which the wedge faces are machined.
	2) <i>Wedge faces</i>	Machined faces which make contact with the body seats when the valve is closed. They may be machined on the wedge themselves or on the wedge facing rings.
	3) <i>Wedge facing rings</i>	Rings of different material from the wedges and secured to them, on which the wedge faces are machined.
	4) <i>Wedge bush</i>	The bush secured in the wedge and threaded internally to engage the actuating thread of the stem of an inside screw, non-rising stem valve.
	5) <i>Wedge nut</i>	The nut retained in the wedge and threaded internally to engage the actuating thread of the stem of an inside screw, non-rising stem valve.

REF No.	TERM	DEFINITION
b) <i>Double Disk Gate Valves</i>		
1) <i>Disk</i>		The components, attached to the stem or the spreading mechanism, on which the disk faces are machined.
2) <i>Disk faces</i>		Machined faces which make contact with body seats when the valve is closed. They may be machined on the disks themselves or on the disk facing rings.
3) <i>Disk facing rings</i>		Rings, of different material from the disks and secured to them, on which the disk faces are machined.
4) <i>Disk wedge</i>		The wedge-shaped component, introduced between the disks, which contacts a stop in the body and forces the disks against the body seats when the valve is closed.
5) <i>Upper spreader</i>		The component which is attached to, or engages, the actuating thread of the stem, and which, in conjunction with the lower spreader and the stop in the body, constitutes the spreading mechanism which forces the disks apart against the body seats when the valve is closed.
6) <i>Lower spreader</i>		The component complementary to the upper spreader.
7) <i>Upper spreader bushing</i>		(Associated only with non-rising stem.) A bushing secured in the upper spreader and threaded internally to engage the actuating thread of the stem.
8) <i>Upper spreader nut</i>		(Associated only with non-rising stem.) A bushing secured in the upper spreader and threaded internally to engage the actuating thread of the stem.
c) <i>Parallel Slide Valves</i>		
1) <i>Disks</i>		The components, carried in the belt eye, on which the disk faces are machined.

REF No.	TERM	DEFINITION
	2) <i>Disk faces</i>	Machined faces which make contact with the body seats when the valve is closed. They may be machined on the disks themselves or on the disk facing rings.
	3) <i>Disk facing rings</i>	Rings, of different material from the disks and secured to them on which the disk faces are machined.
	4) <i>Belt eye</i>	A retaining eye which may be formed on the end of the stem or attached to it and which carries the disks.
	5) <i>Belt ring</i>	A ring, within the belt eye, which retains the disks.
	6) <i>Disk spring</i>	A spring inserted between the disks to maintain contact between the disk seats and the body seats.
	7) <i>Disk clip</i>	A part which restricts the spreading of the disks in the open position.
315	Handwheel	The wheel by which the valve is manually operated.
	a) <i>Handwheel fixing</i>	The nut, set screw, washer, key, feather or other means used to secure the handwheel.
316	Cap	An adaptor fitted to the stem to take a removable key for operating the valve.
317	Stuffing Box	The part of the bonnet or a separate component attached to it, which provides an annular space around the stem or spindle to contain the gland and the gland packing.
	a) <i>Lantern Ring</i>	A spacing ring inserted in the stuffing box to form a pressure relief or condensing chamber [see also 309 (f)].
	b) <i>Stuffing Box Bolting</i>	Comprises bolts, stud bolts, studs, set screws and nuts used to secure the stuffing box, where separate, to the bonnet. This bolting may be extended to form gland bolting.

REF No.	TERM	DEFINITION
	c) <i>Stuffing Box Gasket</i>	A component for effecting a fluid-tight joint between the stuffing box and the bonnet.
318	Gland	A part which retains and forms a means of compressing the packing. Glands are usually of the screws or bolted type, of one-piece or two-piece design.
	a) <i>Screwed Gland</i>	The type of gland which is adjusted by a nut which engages the stuffing box.
	b) <i>Gland Nut</i>	The nut of a screwed gland by which pressure is transmitted to the gland.
	c) <i>Bolted Gland</i>	The type of gland which is adjusted by bolts, studs, set screws etc, attached to the bonnet or the stuffing box.
	d) <i>One-Piece Gland</i>	A bolted design in which the gland is integral with the gland flange.
	e) <i>Two-Piece Gland</i>	A bolted design in which the gland is separate from the gland flange, generally having a self-aligning feature.
	f) <i>Gland Flange</i>	The flange, of a bolted one-piece or two-piece gland, by which pressure is transmitted to the gland.
	g) <i>Gland Bush</i>	A bush which is inserted in a gland.
	h) <i>Gland Bolting</i>	Comprises bolts, eye-bolts, stud bolts, studs, set screws and nuts by which pressure is applied to bolted glands.
	j) <i>Packing Nut</i>	(Usually associated only with small relatively low-pressure valves.) A nut similar to that in 318 (b), but which itself contains and compresses the packing in cases where a gland and stuffing box are not used.
	k) <i>Gland Packing</i>	Material inserted into the stuffing box or packing nut to prevent leakage of fluid.

**KEY TO FIG. 13 TO 21 FOR GATE VALVES ARRANGED IN
ORDER OF PART REFERENCES**

PART REF	NAME OF PART	REFERENCE NO. OF TERM	SEE FIG. No.
1.	Body	307	13 to 20
2.	Body and port	307 (a)	13 to 20
3.	Body end	307 (b)	13 to 20
4.	Bonnet (bolted type)	309 and 307 (c)	13 to 16, 19, 20
5.	Body/bonnet flange	307 (d)	13 to 16, 19, 20
6.	Body end neck	307 (e)	13 to 20
7.	Body/bonnet neck	307 (f)	13 to 20
8.	Body boss	307 (h)	13 to 16, 20
9.	Drain boss	307 (j)	13 to 16, 20
10.	Body seat ring (shoulder seated)	308 (a)	13, 14, 16, 20
11.	Body seat ring (bottom seated)	308 (a)	13, 15, 20
12.	Body plug	308 (c)	13
13.	Bonnet flange	309 (a)	13 to 16, 19, 20
14.	Bonnet stuffing box flange	309 (b)	14, 16
15.	Back seat	309 (c)	13, 14, 17, 19, 20
16.	Bonnet bolt	310 (a)	13 to 16, 20
17.	Bonnet stud	310 (a)	19
18.	Bonnet stud bolt	310 (a)	13
19.	Nut for parts 16, 17, or 18	310 (a)	13 to 16, 19, 20
20.	Bonnet gasket	310 (b)	13 to 16, 20
21.	Bonnet ring joint	310 (c)	13, 15
22.	Back seat bushing	310 (e)	13
23.	Yoke	311	13, 14
24.	Yoke sleeve	311 (a)	13, 14
25.	Yoke sleeve retaining nut	311 (b)	13
26.	Yoke cap	311 (c)	14
27.	Yoke bolting	311 (d)	13, 14
28.	Stem	313	13 to 21
29.	Spindle	313	20, 21
30.	Stem thrust collar	313 (b)	15, 16, 18, 20
31.	Stem/gate connection (tee head)	313 (c)	13, 14
32.	Stem/gate connection (screwed and pinned)	313 (c)	14, 20
33.	Back face	313 (d)	13, 14, 17, 19, 20
34.	Wedge	314 (a) (1)	13, 16, 18, 19, 21
35.	Wedge facing rings	314 (a) (3)	13, 16
36.	Wedge bush	314 (a) (4)	16
37.	Wedge nut	314 (a) (5)	16, 18

(Continued)

**KEY TO FIG. 13 TO 21 FOR GATE VALVES ARRANGED IN
ORDER OF PART REFERENCES — Contd**

PART REF	NAME OF PART	REFERENCE NO. OF TERM	SEE FIG. No.
38.	Disk	314 (b) (1)	14, 15, 17, 20
39.	Disk facing rings	314 (b) (3)	14, 15, 20
40.	Upper spreader	314 (b) (5)	14, 15
41.	Lower spreader	314 (b) (6)	14, 15
42.	Upper spreader bushing	314 (b) (7)	15
42A.	Upper spreader nut	314 (b) (8)	15
43.	Handwheel	315	13 to 20
44.	Handwheel nut	315 (a)	13 to 20
45.	Handwheel washer	315 (a)	16, 20
46.	Stuffing box	317	14, 15, 16, 18
47.	Stuffing box studs	317 (b)	14, 15
48.	Stuffing box stud bolts	317 (b)	16
49.	Stuffing box bolts	317 (b)	16
50.	Nuts for stuffing box bolting	317 (b)	15, 16
51.	Gland	318	13 to 15, 17 to 19
52.	One-piece gland	318 (d)	13, 16, 20
53.	Gland flange	318 (f)	13, 14, 15
54.	Gland bush	318 (g)	14
55.	Gland bolts or studs	318 (h)	13, 20
56.	Gland eye bolts	318 (h)	13, 15
57.	Gland stud bolts	318 (h)	14
58.	Nuts for gland bolting	318 (h)	13 to 16, 20
59.	Gland packing	318 (k)	13 to 20
60.	Stuffing box gasket	317 (c)	14, 15, 16
61.	Bonnet (union type)	309 and 307 (c)	17, 18, 19
62.	Bonnet (screwed type)	309 and 307 (c)	17, 18
63.	Bonnet union nut	310 (d)	17, 18, 19
64.	Stem head	311 (a)	17, 19
65.	Disk wedge	314 (b) (4)	17
66.	Gland nut	318 (b)	17 to 19
67.	Bridge	312	20
68.	Pillars	312 (a)	20
69.	Pillars Nuts	312 (b)	20
70.	Bridge bush	312 (c)	20
71.	Bridge bush nut	312 (d)	20
72.	Bridge bush key	312 (e)	20
73.	Bridge sleeve	312 (f)	20
74.	Pillar/bonnet connection	309 (d)	20
75.	Bridge sleeve bush	312 (h)	20
76.	Belt eye	314 (c) (4)	20
77.	Belt ring	314 (c) (5)	20
78.	Disk spring	314 (c) (6)	20
79.	Disk clip	313 (c) (7)	20
80.	Stem stop	313 (e)	20
81.	Stem stop nut	313 (f)	20
82.	Stem bush	310 (g)	15
83.	Bonnet condensing chamber	309 (f)	13
84.	Lantern ring	317 (a)	13
85.	Bonnet pressure relief boss	319 (h)	13
86.	Bridge sleeve bush retaining nut	312 (h)	20

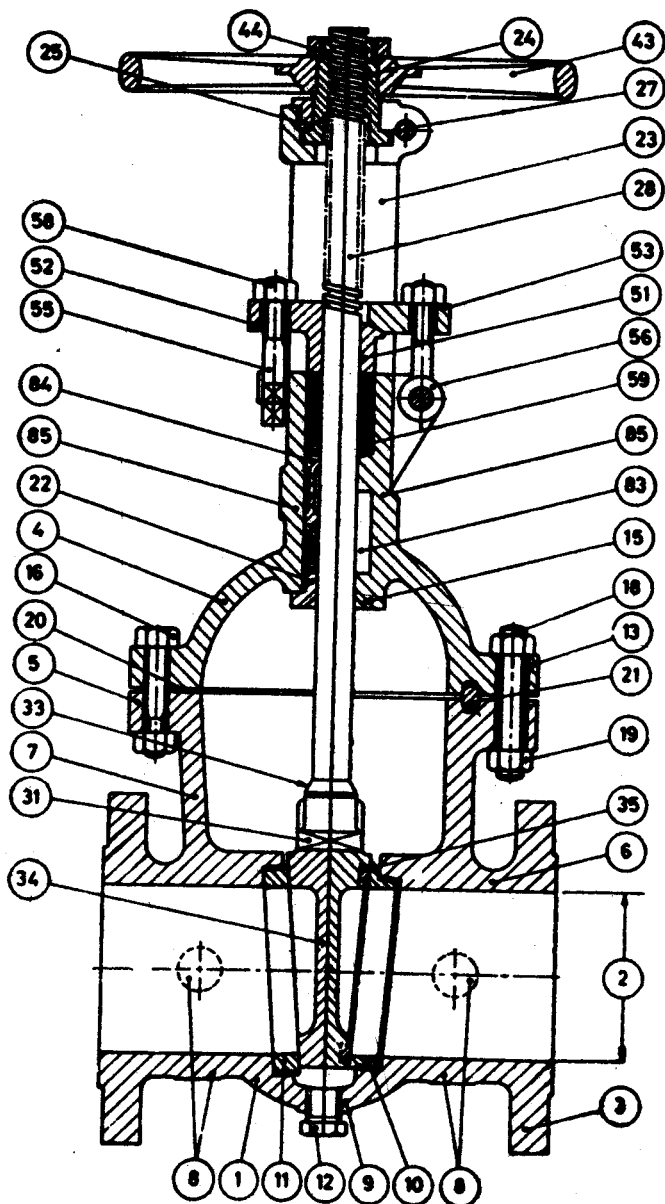


FIG. 13 OUTSIDE SCREW, SOLID WEDGE, STEM RING THROUGH HANDWHEEL

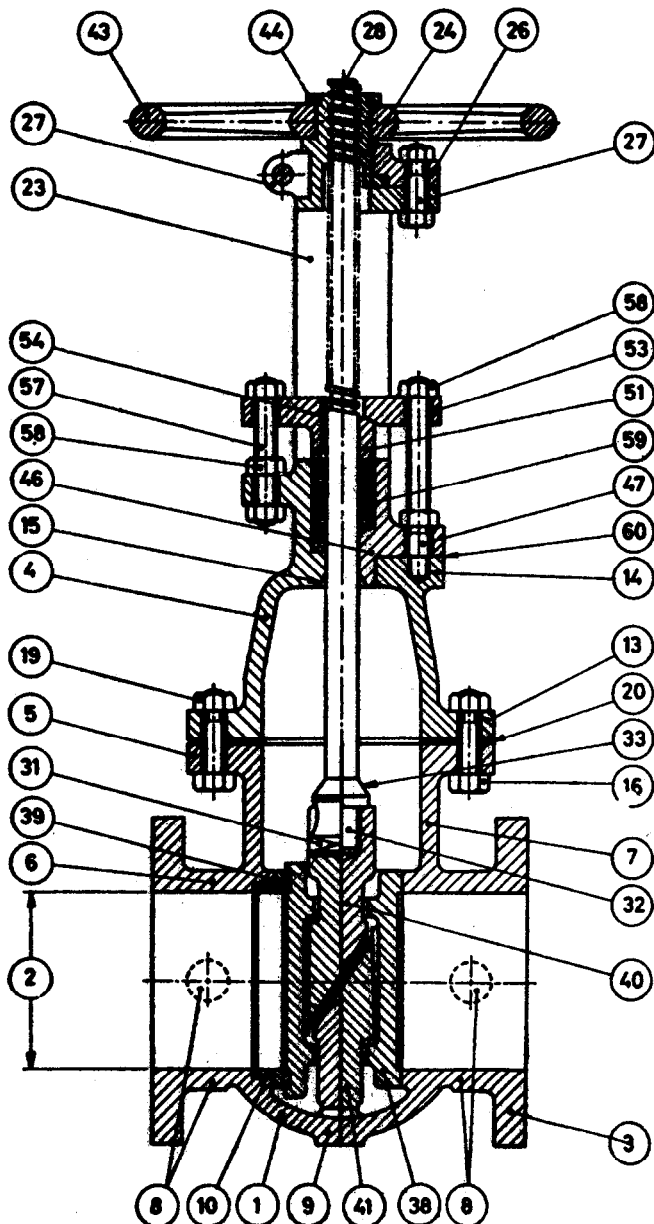


FIG. 14 OUTSIDE SCREW, DOUBLE DISK, STEM RISING THROUGH HANDWHEEL

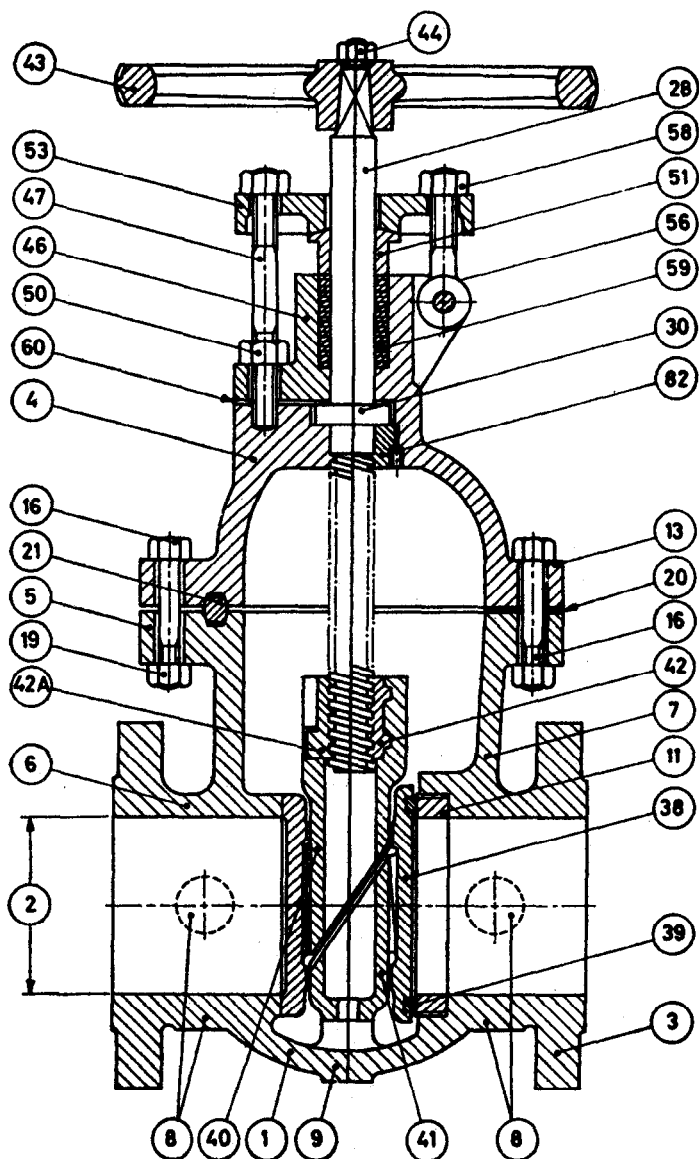


FIG. 15 INSIDE SCREW, DOUBLE DISK, NON-RISING STEM

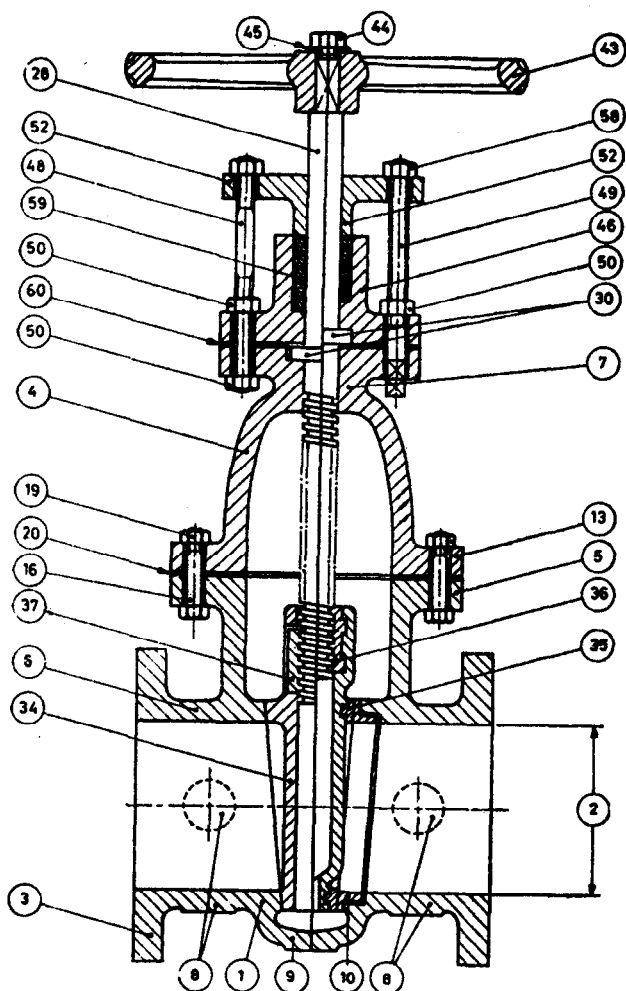


FIG. 16 INSIDE SCREW, SOLID WEDGE, NON-RISING STEM

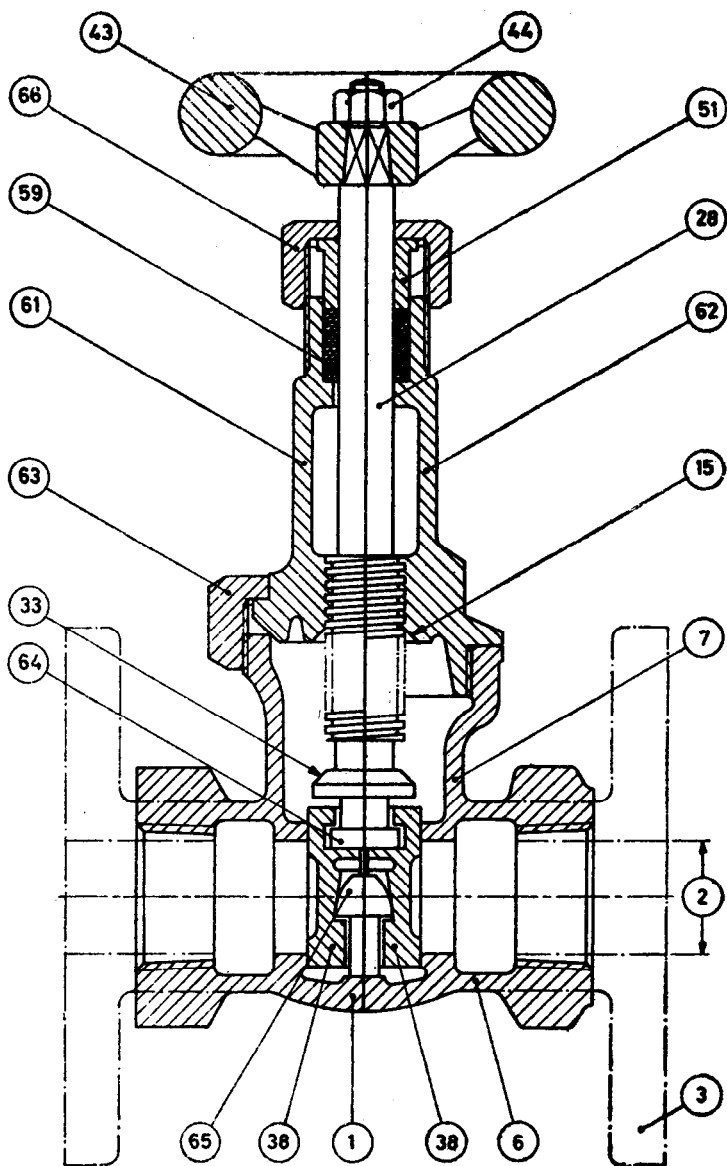


FIG. 17 INSIDE SCREW, DOUBLE DISK, RISING STEM

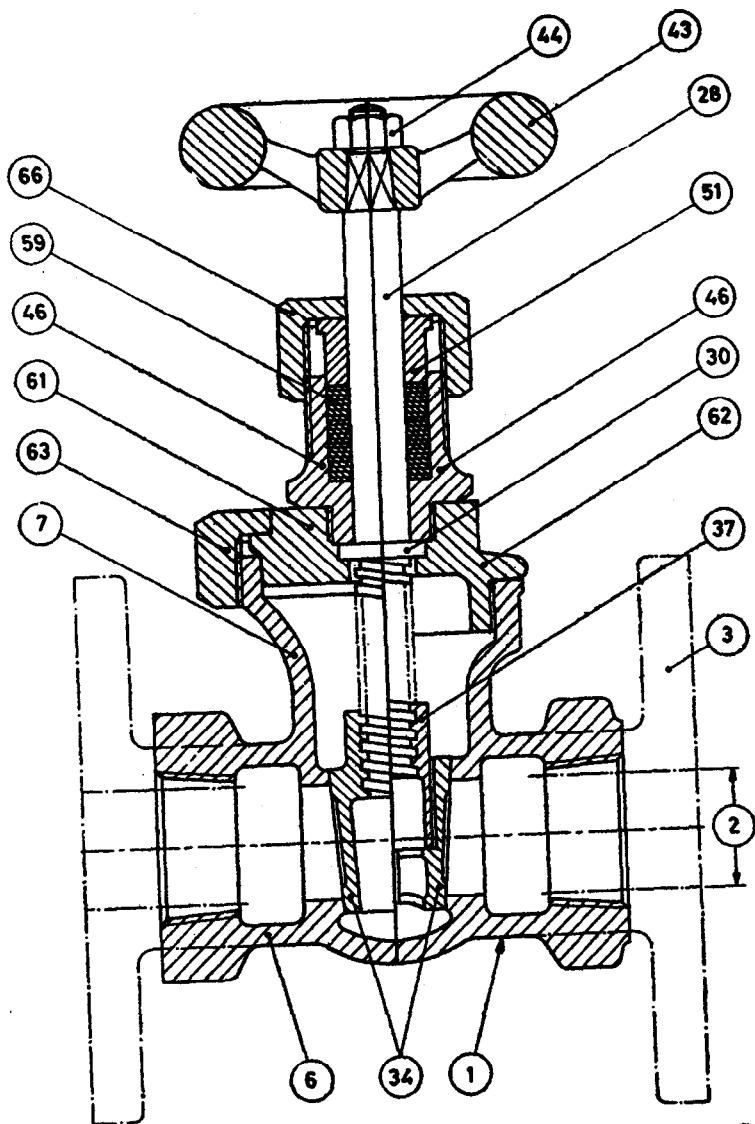


FIG. 18 INSIDE SCREW, SOLID OR SPLIT WEDGE, NON-RISEING STEM

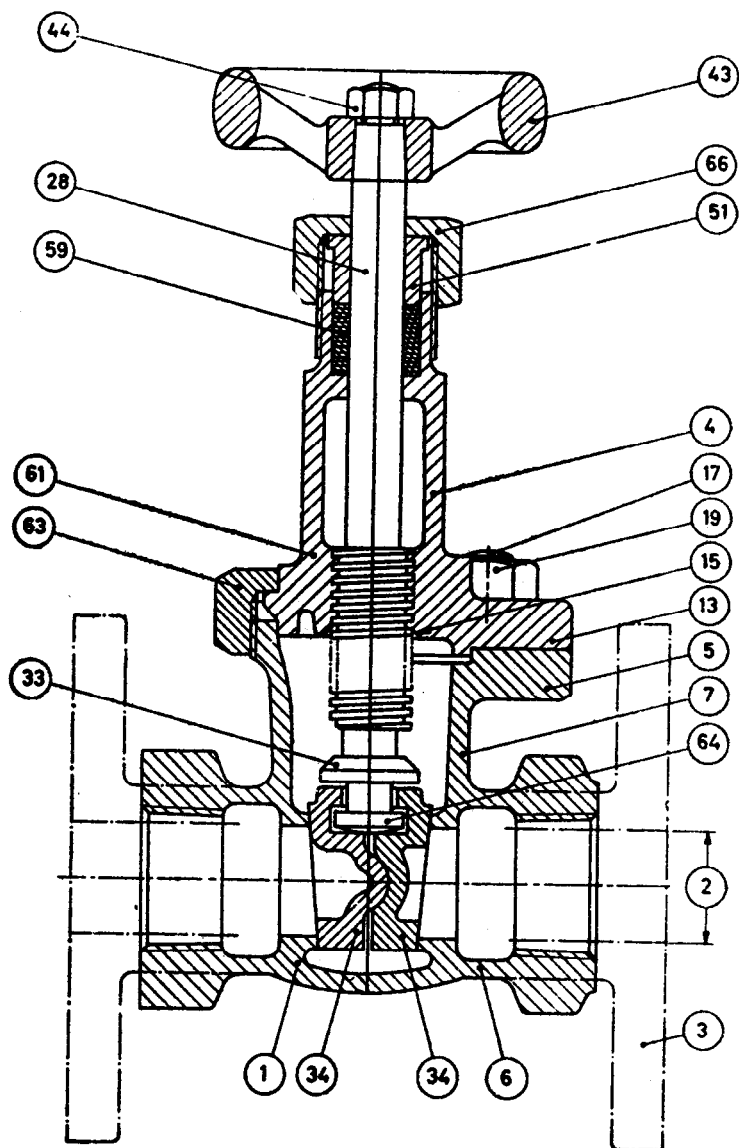


FIG. 19 INSIDE SCREW, SPLIT WEDGE, RISING STEM

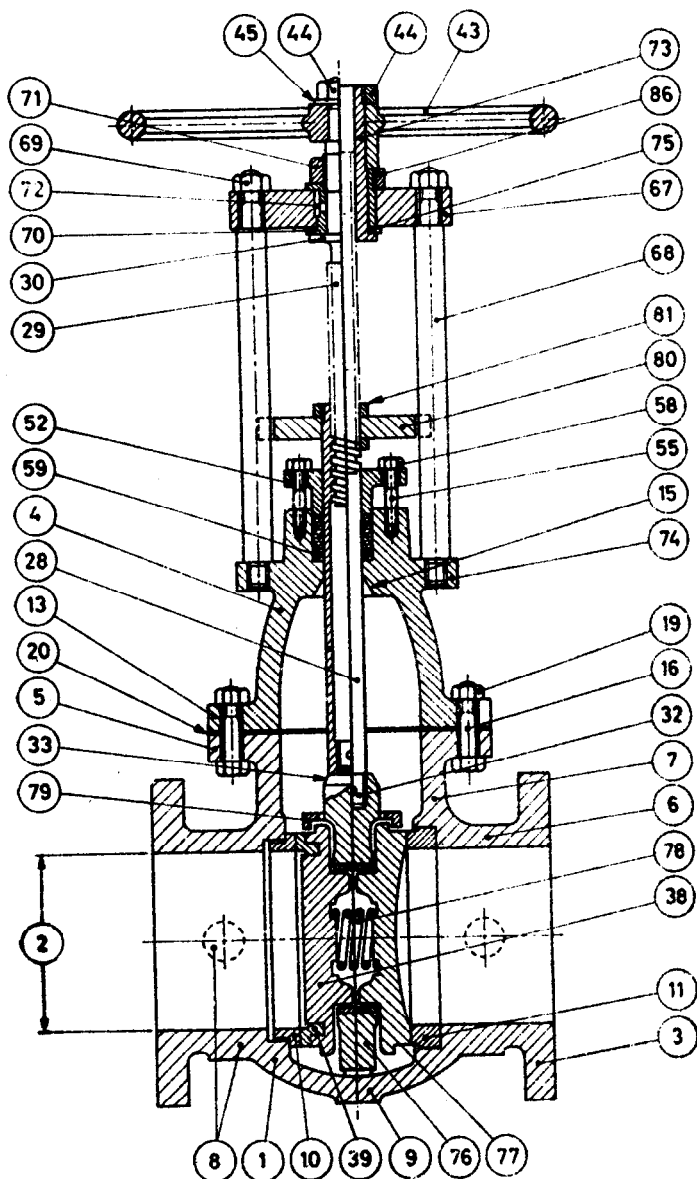


FIG. 20 PARALLEL SLIDE VALVE

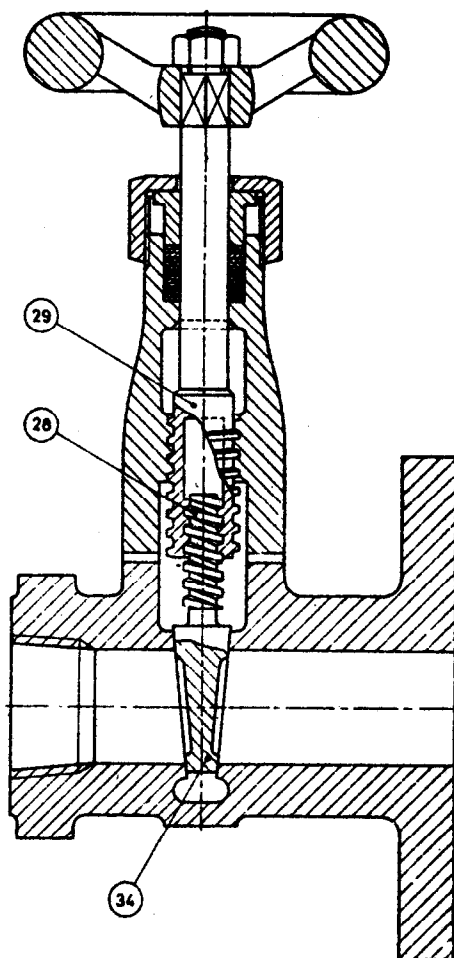


FIG. 21 INSIDE SCREW, SOLID WEDGE, RISING SPINDLE, RISING STEM

(Continued from page 2)

Members

DR B. S. GARUD
 SHRI V. R. PABBI (*Alternate*)
 SHRI K. MUKHERJEE
 SHRI K. P. AIYAPPAN NAYAR

 SHRI V. R. RAMAPRASAD
 SHRI D. K. SEGHAL
 SHRI B. K. BERRI (*Alternate*)
 SHRI V. SHARMA

Representing

The Delhi Cloth & General Mills Co Ltd, Delhi

 The Fertilizer Corporation of India Ltd, Dhanbad
 The Fertilizers and Chemicals (Travancore) Ltd,
 Alwaye
 Bharat Heavy Electricals Ltd, New Delhi
 Leader Engineering Works, Jullundur City

 Audco India Ltd, Bombay

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002;

Telephones : 331 01 31, 331 13 75

Telegrams : Manaksanstha
(Common to all offices)

Regional Offices :

Telephone

*Western : Manakalaya, E9 MIDC, Marol, Andheri (East), BOMBAY 400093	6 32 92 95
†Eastern : 1/14 C. I. T. Scheme VII M, V. I. P. Road, Maniktola, CALCUTTA 700054	36 24 99
Southern : C. I. T. Campus, MADRAS 600113	41 24 42
Northern : SCO 445-446, Sector 35-C, CHANDIGARH 160036	2 18 43 3 16 41

Branch Offices :

'Pushpak' Nurmohamed Shaikh Marg, Khanpur, AHMADABAD 380001	{ 2 63 48 2 63 49
'F' Block Unity Bldg, Narasimharaja Square, BANGALORE 560002	22 48 05
Gangotri Complex, Bhadbhada Road, T. T. Nagar, BHOPAL 462003	6 67 16
Plot No. 82/83, Lewis Road, BHUBANESHWAR 751002	5 36 27
53/5, Ward No. 29, R. G. Barua Road 5th Byelane, GUWAHATI 781003	—
5-8-56C L. N. Gupta Marg, HYDERABAD 500001	23 10 83
R14 Yudhister Marg, C Scheme, JAIPUR 302005	6 98 32
117/418 B Sarvodaya Nagar, KANPUR 208005	21 68 76
Patliputra Industrial Estate, PATNA 800013	6 23 05
Hantex Bldg (2nd Floor), Rly Station Road, TRIVANDRUM 695001	7 66 37

Inspection Office (With Sale Point) :

Pushpanjali 205-A West High Court Road, Bharampeth Extension, NAGPUR 440010	2 51 71
Institution of Engineers (India) Building, 1332 Shivaji Nagar, PUNE 411005	5 24 35

*Sales Office in Bombay is at Novelty Chambers, Grant Road, Bombay 400007 89 65 28

†Sales Office in Calcutta is at 5 Chowringhee Approach, P.O. Princep Street, Calcutta 700072 27 68 00